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| 10/510,691      | 10/08/2004  | Bruce S Hall         | T3572-908375US01    | 4047             |

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MILES & STOCKBRIDGE PC  
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MCLEAN, VA 22102-3833

EXAMINER

A, PHI DIEU TRAN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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3637

DATE MAILED: 04/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/510,691

Applicant(s)

HALL, BRUCE S

Examiner

Phi D. A

Art Unit

3637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/8/05, 10/8/04</u>   | 6) <input type="checkbox"/> Other: _____                                    |

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 37 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The invention allows for panel to resist shrapnel; not a panel containing shrapnel.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 35, 52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 35 “the channel is fastened to an interior surface of the structure” is indefinite as it is confusing the scope of the claim. The claim is to a system for improving penetration resistance of a structure; the relationship between the system and the structure thus must be claimed as subcombination, not combination.

Claim 52 line 8 “1200 psi by 1200 psi “ is indefinite.

5. PRODUCT BY PROCESS CLAIM:

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“ The subject matter present is regarded as a product by process claim in which a product is introduced by the method in which it is made. It is the general practice of this office to examine the final product described regardless of the method provided by the applicant.”

The above office policy applies to the limitations of “ cured”, “ sprayed” of claims 14, 27, 30-31, 38, and 52-53.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 6-7, 12, 14-15, 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Diamond (2002/0184841).

Diamond shows a method of providing a blast resistance of a structure comprising spraying a layer of elastomer material (220) to form a blast resistant panel of a predetermine thickness, once cured, securing the panel to a surface of the structure (40), the elastomer material being polyurethane (paragraph 51), the panel is flexible, the spraying said layer of elastomeric material comprising spraying (nozzle 38) the layer directly onto a molding surface, fastener elements (247, 250) for securing the cured layer to a surface of a structure, a channel member (212) secured to the panel around at least a portion of a periphery thereof, the panel having a thickness in the range of about 100mil to about 250mil (paragraph 53 → 0.5-12inches thick), a thickness of about 180mil (within the disclosed range of 0.5-12inch).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diamond in view of Fyfe (6806212).

Diamond shows all the claimed limitations except for the elastomeric material being a polyurea material.

Fyfe discloses polyurea for forming a coating for reinforcing structure (col 3 lines 25-48).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Diamond's structure to show the elastomeric material being a polyurea material because polyurea would provide a good coating for reinforcing structures as taught by Fyfe.

Diamond as modified shows all the claimed limitations. The claimed method steps of improving blast resistant to a structure would have been the obvious method steps of protecting a structure with Diamond's modified structure.

5. Claims 4-5, 9-10, 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diamond in view of Fyfe (6806212).

Diamond shows all the claimed limitations except for the elastomeric material having a percent elongation at break in a range of about 100-800% and having a tensile strength greater than 2000psi, the range being of about 400-800%.

Fyfe further discloses preferred sprayed polyurethane for having a percent elongation at break in a range of about 600-700%, and the tensile strength of about 4000psi.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Diamond's structure to show the elastomeric material being having a percent elongation at break in a range of about 100-800% and having a tensile strength greater than 2000psi, the range being of about 400-800%. because it would allow for good curing time and no release of volatile organic solvents mix as taught by Fyfe..

Diamond as modified shows all the claimed limitations. The claimed method steps of improving blast resistant to a structure would have been the obvious method steps of protecting a structure with Diamond's modified structure.

6. Claims 11, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diamond in view of Makami et al (4478895).

Diamond shows all the claimed limitations except for the step of spraying the layer of elastomeric material comprising spraying the material onto a fabric reinforcement layer, the step of spraying the material onto a reinforcement layer positioned on a molding surface.

Makami et al discloses the step of spraying layers of elastomers on a fabric reinforcement layer (1).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Diamond's structure to show the step of spraying the layer of elastomeric material comprising spraying the material onto a fabric reinforcement layer, the step of spraying the material onto a reinforcement layer positioned on a molding surface because having a fabric layer within layers of elastomer would impart strength dimensional stability to the structure as taught by Makami et al (col 2 line 34).

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Diamond as modified shows all the claimed limitations. The claimed method steps of improving blast resistant to a structure would have been the obvious method steps of protecting a structure with Diamond's modified structure.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Diamond in view of Fyfe (6806212).

Diamond shows all the claimed limitations except for the elastomeric material being a polyurea material.

Fyfe discloses polyurea for forming a coating for reinforcing structure (col 3 lines 25-48).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Diamond's structure to show the elastomeric material being a polyurea material because polyurea would provide a good coating for reinforcing structures as taught by Fyfe.

8. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Diamond in view of Makami et al (4478895).

Diamond shows all the claimed limitations except for the panel further comprising a fabric reinforcing layer.

Makami et al discloses the using fabric(1) to reinforce layers of elastomers.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Diamond's structure to show the panel further comprising a fabric reinforcing layer because having a fabric layer within layers of elastomer would impart strength dimensional stability to the structure as taught by Makami et al (col 2 line 34).

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9. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Diamond in view of Fyfe (6806212) as applied to claim 16 above and further in view of Makami et al (4478895).

Diamond as modified shows all the claimed limitations except for the panel further comprising a fabric reinforcing layer.

Makami et al discloses the using fabric(1) to reinforce layers of elastomers.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Diamond's modified structure to show the panel further comprising a fabric reinforcing layer because having a fabric layer within layers of elastomer would impart strength dimensional stability to the structure as taught by Makami et al (col 2 line 34).

10. Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diamond in view of Fyfe (6806212) and Makami et al as applied to claim 14 above and further in view of Benedict et al (5681612).

Diamond as modified shows all the claimed limitations except for the fabric reinforcing layer being of aramid fibers or polyester fibers.

Benedict et al discloses fabric reinforcing layer being of aramid fibers or polyester fibers.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Diamond's modified structure to show the fabric reinforcing layer being of aramid fibers or polyester fibers because these fabric are readily available and provides good strength for the composite structure as taught by Benedict et al.

11. Claims 27-28, 30-35, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haas (6269597) in view of Madden Jr (5811719).



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Haas shows a system comprising a panel (13) constructed of a fiberglass loaded plastic, the panel having a steel channel (6) fastened around a peripheral thereof, a plurality of fasteners adapted to fasten the channel and the panel to a wall of a structure, a pair of opposing sides depending from the opposite ends of a bottom portion to form a substantially U-shaped channel, a U-shaped steel channel along a top portion, a bottom portion, a first side portion of the periphery (figure 1), the panel being cured (inherently so as it is of plastic), the channel is fastened to an interior surface of the structure (inherently so as no structure is claimed and no relationship between the structure and the system is claimed with respect to position), the panel containing shrapnel between the panel and the surface of the structure,

Haas does not show the plastic being an elastomeric material, the fiber being a fabric reinforcing layer.

Madden Jr. discloses a protective shield having layers of fibrous material held together by flexible resins (col 6 lines 2-3).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Haas's structure to show the plastic being an elastomeric material, the fiber being a fabric reinforcing layer because having elastomeric material surrounding fiber layers to form a protective device would enable the device to withstand tremendous impact forces as taught by Madden Jr.

Per claims 32-34, Haas as modified shows the fabric layer being embedded in the elastomeric material, the fabric being of aramid fiber and the fiber being open grid pattern (Madden col 5 line 66).

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12. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haas (6269597) in view of Madden Jr (5811719) as applied to claim 27 above and further in view of White (6907811)

Haas as modified shows all the claimed limitations except for a Z-shaped steel channel along a second side portion of the periphery opposite the first side portion and between the top and bottom side portion, the Z-shaped steel channel to be fastened to a first and second of the one or more panels.

White (figure 5) discloses a Z-shaped channel along a second side portion of the periphery opposite the first side portion and between the top and bottom side portion, the Z-shaped steel channel to be fastened to a first and second of the one or more panels.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Haas's structure to show a Z-shaped steel channel along a second side portion of the periphery opposite the first side portion and between the top and bottom side portion, the Z-shaped steel channel to be fastened to a first and second of the one or more panels because it would allow for the supporting of multiple panels to span and cover a large area as taught by White.

13. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haas (6269597) in view of Madden Jr (5811719) and White (6907811)

Haas as modified shows all the claimed limitations except for the panel having a thickness in the range of about 100-250mil.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Haas's modified structure to show the panel having a thickness in the range

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of about 100-250mil because the increased thickness would increase the protective strength of the cover.

14. Claim 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haas (6269597) in view of Madden Jr (5811719) as applied to claim 30 above and further in view of Fyfe (6806212).

Haas as modified shows all the claimed limitations except for the elastomeric material having a percent elongation at break in a range of about 100-800% and having a tensile strength greater than 2000psi, the range being of about 400-800%.

Fyfe further discloses preferred sprayed polyurethane for having a percent elongation at break in a range of about 600-700%, and the tensile strength of about 4000psi.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Haas's modified structure to show the elastomeric material being having a percent elongation at break in a range of about 100-800% and having a tensile strength greater than 2000psi, the range being of about 400-800%. because it would allow for good curing time and no release of volatile organic solvents mix as taught by Fyfe.

Per claim 41, Haas as modified shows all the claimed limitations except for the elastomeric material being a polyurea material.

Fyfe further discloses polyurea for forming a coating for reinforcing structure (col 3 lines 25-48).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Haas's modified structure to show the elastomeric material being a polyurea

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material because polyurea would provide a good coating for reinforcing structures as taught by Fyfe.

15. Claims 42-44, 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartzell et al (3522140).

Hartzell et al shows a penetration resistant panel, the panel having a reinforcing fabric material( asbestos fiber), spraying a first layer of an elastomeric material (cellular foam layer) to a first thickness onto a first portion of the fabric material, spraying a second layer (organic coating) of the elastomeric material to a second thickness onto the second portion of the fabric material, finishing around a periphery of the blast resistant panel (inherently so), removing the panel from a manufacturing surface, the fabric being substantially planar, the fabric comprising a substantially open grid pattern, the panel is blast resistant (inherently so), the step of allowing panel to cure

Hartzell et al does not show the step of positioning the fabric material against a molding surface, the step of slipping the fabric material with the first layer of the elastomeric material over to expose a second portion of the fabric.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Hartzell et al's steps of constructing the panel to show the steps of positioning the fabric material against a molding surface, the step of slipping the fabric material with the first layer of the elastomeric material over to expose a second portion of the fabric because positioning the fabric material onto a molding surface would enable the easy spraying of a coating on the surface of the fabric material without the material moving around, and flipping

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the cover fabric material over would allow for the easy spraying of the other side of the fabric material.

Per claims 44-45, Hartzell et al as modified shows the step of removing the panel from the molding surface, the step of flipping the fabric material with the first layer over on the molding surface to expose the second portion of the fabric.

16. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hartzell et al (3522140).

Hartzell et al as modified shows all the claimed limitations except for the elastomeric material of the first and second layer being of polyurea, polysiloxane, polyurethane, and polyurea/polyurethane hybrid.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Hartzell et al's modified structure to show the elastomeric material of the first and second layer being of polyurea, polysiloxane, polyurethane, and polyurea/polyurethane hybrid because polyurethane is a well known insulating elastomer for forming insulating layers for panel, and having polyurethane forming layers on both sides of the fabric would enable the formation of a strong and insulating panel.

17. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hartzell et al (3522140).

Hartzell et al as modified shows all the claimed limitations except for the step of securing the panel to a surface of a structure.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Hartzell et al's modified structure to show the step of securing the panel to a

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surface of a structure because securing a panel to a surface of a structure would enable the mounting of the panel to a surface of a structure and is well known in the art.

18. Claims 52-53, 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haas (6269597) in view of Madden Jr (5811719) and Fyfe (6806212).

Haas shows a system comprising a panel (13) constructed of a fiberglass loaded plastic, the panel having a U-shaped steel channel (6) fastened around a peripheral thereof, a plurality of fasteners adapted to fasten the channel and the panel to a wall of a structure, a pair of opposing sides depending from the opposite ends of a bottom portion to form a substantially U-shaped channel, the panel being cured (inherently so as it is of plastic).

Haas does not show the plastic being an elastomeric material, the fiber being a fabric reinforcing layer, the panel having a thickness of about 100-250 mil, a percent elongation at break in a range of about 400-800% and a tensile strength of about 2000psi or greater, the fabric layer being substantially planar and including warp and fill yarns defining an open grid pattern with openings of up to about 0.5 inch by 0.25 inch and a tensile strength of about 1200psi by 1200psi.

Madden Jr. discloses a protective shield having layers of fibrous material held together by flexible resins (col 6 lines 2-3), the fiber layer being open grid pattern.

Fyfe discloses preferred sprayed polyurethane for having a percent elongation at break in a range of about 600-700%, and the tensile strength of about 4000psi.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Haas's structure to show the plastic being an elastomeric material, the fiber being a fabric reinforcing layer, the panel having a thickness of about 100-250 mil, a percent

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elongation at break in a range of about 400-800% and a tensile strength of about 2000psi or greater, the fabric layer being substantially planar and including warp and fill yarns defining an open grid pattern with openings of up to about 0.5 inch by 0.25 inch and a tensile strength of about 1200psi by 1200psi because having elastomeric material surrounding fiber layers to form a protective device would enable the device to withstand tremendous impact forces as taught by Madden Jr., the panel having the percent elongation at break in a range of about 400-800% and a tensile strength of about 2000psi or greater would allow for good curing time and no release of volatile organic solvents mix as taught by Fyfe, panel having a thickness in the range of about 100-250mil would increase the protective strength of the cover, and having the fiber defining an open grid pattern with opening of up to about 0.5 inch by 0.25 inch would allow for easy adhesion and bonding of the elastomer to the fabric; and having a fiber with tension strength of 1200 would enable the formation of a strong reinforcing panel.

19. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haas (6269597) in view of Madden Jr (5811719) and Fyfe (6806212).

Haas as modified shows all the claimed limitations except for the elastomeric material being a polyurea material.

Fyfe further discloses polyurea for forming a coating for reinforcing structure (col 3 lines 25-48).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Haas's modified structure to show the elastomeric material being a polyurea material because polyurea would provide a good coating for reinforcing structures as taught by Fyfe.

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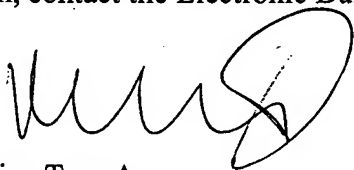
***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art shows different panel designs and methods of forming the panels.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phi D A whose telephone number is 571-272-6864. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lanna Mai can be reached on 571-272-6867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Phi Dieu Tran A

4/24/06